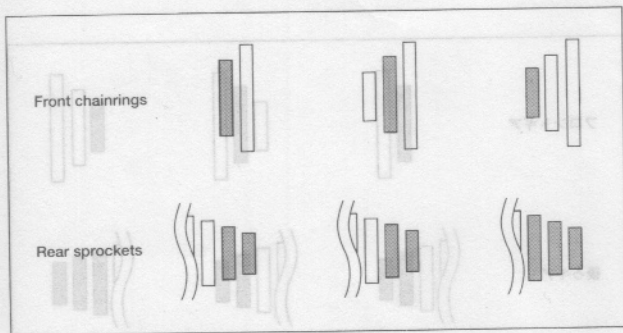


## Contact between the front chainrings/front derailleur and the chain

Before use, read these instructions carefully, and follow them for correct use.

When the chain is in the position shown in the illustration, the chain may contact the front chainrings or front derailleur and generate noise.

If the noise is a problem, shift the chain onto the next-largest rear sprocket or the one after.



# SHIMANO®

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**SHIMANO EUROPA**

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

**SHIMANO INC.**

77 Oimatsu-cho 3-cho Sakai Osaka 590-8577 Japan Phone 072-223-3243

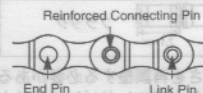
## General Safety Information

### WARNING

- Use neutral detergent to clean the chain. Do not use alkali-based or acid based detergent such as rust cleaners as it may result in damage and/or failure of the chain.
- Use the reinforced connecting pin only for connecting the narrow type of chain.
- There are two different types of reinforced connecting pins available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or tool which is not suitable for the type of chain is used, sufficient connection force may not be obtained, which could cause the chain to break or fall off.

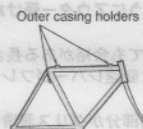
Chain	Reinforced connecting pin	Chain tool
9-speed super narrow chain such as CN-7701 / CN-HG93	 Silver 6.5 mm	TL-CN32/TL-CN23
8- / 7- / 6-speed narrow chain such as CN-HG50 / CN-IG51	 Black 7.1 mm	TL-CN32/TL-CN23

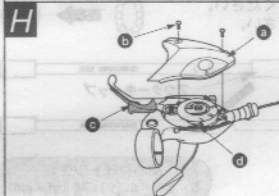
- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.
- Be careful not to let the cuffs of your clothes get caught in the chain while riding, otherwise you may fall off the bicycle.
- Check that the tension of the chain is correct and that the chain is not damaged. If the tension is too weak or the chain is damaged, the chain should be replaced. If this is not done, the chain may break and cause serious injury.
- Check that there are no cracks in the crank arms before riding the bicycle. If there are any cracks, the crank arm may break and you may fall off the bicycle.
- Obtain and read the service instructions carefully prior to installing the parts. Loose, worn, or damaged parts may cause injury to the rider.
- We strongly recommend that only genuine Shimano replacement parts be used.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.



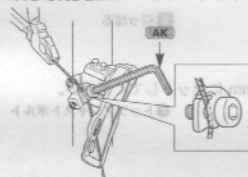
### Note

- In addition, if pedaling performance does not feel normal, check this once more.
- Check that there is no looseness in any joints or connections before riding the bicycle. (BB-FC, FC-PD)
- Do not wash the bottom bracket with high-pressure jets of water.
- If you feel any looseness in the bottom bracket axle, the bottom bracket should be replaced.
- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.
- You should periodically wash the chainrings in a neutral detergent and then lubricate them again. In addition, cleaning the chain with neutral detergent and lubricating it can be a effective way of extending the useful life of the chainrings and the chain.
- If the chain keeps coming off the chainrings during use, replace the chainrings and the chain.
- Apply grease to the bottom bracket before installing it.
- For smooth operation, use the specified outer casing and the bottom bracket cable guide.
- This front derailleur is for triple front chainwheel use only. It cannot be used with the double front chainwheel, as the shifting points do not match.
- When installing the top route type, choose a frame that has three outer casing holders as shown in the illustration at right.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- Parts are not guaranteed against natural wear or deterioration resulting from normal use.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.

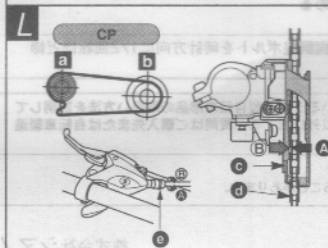
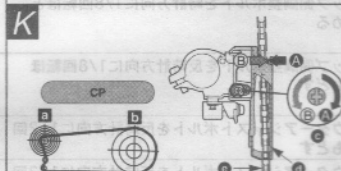
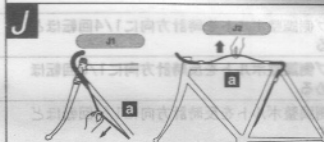




&lt; FD-CT92-E &gt;



&lt; FD-C051 &gt;



## Front Drive System

In order to realize the best performance, we recommend that the following combination be used.

Series	Altus	
	Right	Left
Gears	SIS 8-gears	SIS 7-gears
	SIS 3-gears	SIS 3-gears
Rapidfire Plus	ST-EF50-L	ST-EF50-L
Outer casing	SIS	SIS
Front derailleur	FD-CT92-E	FD-C051
Front chainwheel	FC-TY40	FC-TX71
Bottom bracket	BB-UN26-E	BB-UN26
Chain	CN-HG50 / CN-HG40	CN-HG50 / CN-HG40
Bottom bracket cable guide	SM-SP18 / SM-BT18	SM-SP18 / SM-BT18

## Specifications

### Front Derailleur

Model number	FD-CT92-E	FD-C051
Applicable bottom bracket	BB-UN26-E	BB-UN26
Applicable front chainwheel	FC-TY40	FC-TX71
Applicable to both normal type and top route type	X	X
Top gear tooth	42T	48T
Front chainwheel tooth difference	18T	20T
Min. difference between top and intermediate	8T	10T
Front derailleur installation band diameter	S, M	S, M
Chainstay angle (α)	66°- 69°	66°- 69°
Applicable chain line	47.5 mm 50 mm	47.5 mm 50 mm

### Installation band diameters:

S [28.6 mm], M [31.8 mm], L [34.9 mm]  
(FD-C051 : Use the adapter for S and M sizes.)

### Bottom Bracket

Model number	BB-UN26-E	BB-UN26
Stamped marking	YL117	ZL122
Spindle length	117 mm	122 mm
Chain line	47.5 mm	50.0 mm
Applicable front chainwheel	FC-TY40	FC-TX71
Thread dimensions	BC 1.37 X 24 T.P.I. (73 mm)	BC 1.37 X 24 T.P.I. (68 mm)

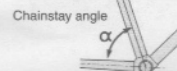
### Chainwheel

Model number	FC-TY40	FC-TX71
Chainwheel tooth combination	42-34-24T	48-38-28T
Crank arm length	170 mm	
Pedal thread dimensions	BC 9/16" x 20 T.P.I.	

Note:

AK : 5mm Allen key

CP : Chain position



## Gear shifting operation

Both lever (A) and lever (B) always return to the initial position when they are released after shifting. When operating one of the levers, always be sure to turn the crank arm at the same time.

### To shift from a small chainring to a larger chainring (Lever A) **A**

When lever (A) is pressed once, there is a shift of one step from a small chainring to a larger chainring.

**Example:** from intermediate chainring to largest chainring.

**a** Lever (A) initial position

### To shift from a large chainring to a smaller chainring (Lever B) **B**

When lever (B) is pressed once, there is a shift of one step from a large chainring to a smaller chainring.

**Example:** from largest chainring to intermediate chainring.

**a** Lever (B)

## Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

### < FD-CT92-E >

Use the special tools (TL-UN65 and TL-UN74-S) to install the bottom bracket **①** and the front derailleur so that they face as shown in the illustration. Install the adapter **②**, and then use the cotterless crank extractor (TL-FC10) to install the front chainwheel. **C**

**a** Bottom Bracket

**b** Adapter

Adapter / bottom bracket tightening torque:

50 - 70 N·m {435 - 608 in. lbs.}

Front chainwheel tightening torque:

35 - 50 N·m {305 - 435 in. lbs.}

**c** Front Chainwheel

**d** Front Derailleur

Adjust and then install the front derailleur as shown in the illustration. Do not remove the Pro-Set alignment block at this time. **D**

**D1** Gear teeth should come within this range.

**a** Pro-Set gauge

**b** Pro-Set alignment block

The level section of the chain guide outer plate should be directly above and parallel to the largest chainring. Secure using a 5 mm Allen key.

**c** Chainwheel (largest chainring)

**d** Chain guide

Tightening torque:

5 - 7 N·m {44 - 60 in. lbs.}

## Chain length **E**

Add 2 links (with the chain on both the largest sprocket and the largest chainring)

**a** Largest sprocket

**b** Largest chainring

**c** Chain

## Mounting the shifting lever **F**

Use a handlebar grip with a maximum outer diameter of 32 mm.

Tightening torque:

6 - 8 N·m {53 - 69 in. lbs.}

# Installation of the Front Derailleur, Bottom Bracket and Front Chainwheel

## < FD-CT92-E >

Use the special tools (TL-UN65 and TL-UN74-S) to install the bottom bracket ① and the front derailleur so that they face as shown in the illustration. Install the adapter ②, and then use the cotterless crank extractor (TL-FC10) to install the front chainwheel.

① Bottom Bracket

② Adapter

③ Front Chainwheel

④ Front Derailleur

Adjust and then install the front derailleur as shown in the illustration. Do not remove the Pro-Set alignment block at this time.

D1 Gear teeth should come within this range.

⑤ Pro-Set gauge

⑥ Pro-Set alignment block

The level section of the chain guide outer plate should be directly above and parallel to the largest chainring. Secure using a 5 mm Allen key.

⑦ Chainwheel (largest chainring)

⑧ Chain guide

Adapter / bottom bracket tightening torque:  
50 - 70 N·m (435 - 608 in. lbs.)  
Front chainwheel tightening torque:  
35 - 50 N·m (305 - 435 in. lbs.)

Tightening torque:  
5 - 7 N·m (44 - 60 in. lbs.)

## Chain length E

Add 2 links (with the chain on both the largest sprocket and the largest chainring)

⑨ Largest sprocket

⑩ Largest chainring

⑪ Chain

## Mounting the shifting lever F

Use a handlebar grip with a maximum outer diameter of 32 mm.

Tightening torque:  
6 - 8 N·m (53 - 69 in. lbs.)

## SIS adjustment

Be sure to follow the sequence described below.

### 1. Low adjustment G

First remove the Pro-Set alignment block.

Next, set so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.

⑫ Pro-Set alignment block

⑬ Largest sprocket

⑭ Smallest chainring

⑮ Low adjustment screw

⑯ Chain guide inner plate

⑰ Chain

### 2. Securing the inner cable H

Operate lever (B) two times or more to set the lever to the lowest position.

Remove the screw, and then remove the cover.

Pull out the inner cable as shown in Figure, and then install the new inner cable.

⑱ Cover

⑲ Screw

⑳ Lever (B)

㉑ Inner cable

Tightening torque:  
0.3 - 0.5 N·m (3 - 4 in. lbs.)

### Inserting the inner cable

Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.

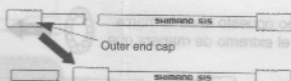


### Cutting the outer casing

When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.



Attach the same outer end cap to the cut end of the outer casing.



Cut off the excess length of inner cable and then install the inner end cap.

Pass the cable through as shown in the illustration.

Tightening torque:  
5 - 7 N·m (44 - 60 in. lbs.)

After taking up the initial slack in the cable, re-secure to the front derailleur as shown in the illustration.

J1 Normal type

J2 Top route type

a Pull

### 3. Top adjustment K

Set so that the clearance between the chain guide outer plate and the chain is 0-0.5 mm.

㉒ Smallest sprocket

㉓ Largest chainring

㉔ Top adjustment screw

㉕ Chain guide outer plate

㉖ Chain

### 4. Adjustment of the intermediate chainring L

When carrying out adjustment, set the chain to the largest sprocket, and at the front, set the chain to the intermediate chainring. Adjust using the outer casing adjustment barrel so that the clearance between the chain guide inner plate and the chain is 0-0.5 mm.

㉗ Largest sprocket

㉘ Intermediate chainring

㉙ Chain guide inner plate

㉚ Chain

㉛ Outer casing adjustment barrel

### 5. Troubleshooting chart

After completion of steps 1 - 4, move the shifting lever to check the shifting. (This also applies if shifting becomes difficult during use.)

If the chain falls to the crank side.	Tighten the top adjustment screw clockwise (about 1/4 turn).
If shifting is difficult from the intermediate chainring to the largest chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If shifting is difficult from the intermediate chainring to the smallest chainring.	Loosen the low adjustment screw counterclockwise (about 1/4 turn).
If there is interference between the chain and the front derailleur inner plate at the largest chainring.	Tighten the top adjustment screw clockwise (about 1/8 turn).
If there is interference between the chain and the front derailleur outer plate at the largest chainring.	Loosen the top adjustment screw counterclockwise (about 1/8 turn).
If the intermediate chainring is skipped when shifting from the largest chainring.	Loosen the outer casing adjustment barrel counterclockwise (1 or 2 turns).
If there is interference between the chain and front derailleur inner plate when the rear sprocket is shifted to the largest sprocket when the chainwheel is at the intermediate chainring position.	Tighten the outer casing adjustment barrel clockwise (1 or 2 turns).
If the chain falls to the bottom bracket side.	Tighten the low adjustment screw clockwise (about 1/2 turn).

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

# SHIMANO

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Please note: specifications are subject to change for improvement without notice. (English)

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

SHIMANO INC.

3-77 Oimatsu-cho, Sakai-ku, Sakai, Osaka 590-8577, Japan



**WARNING**

- Check that the wheels are fastened securely before riding the bicycle. If the wheels are loose in any way, they may come off the bicycle and serious injury may result.
- Use neutral detergent to clean the chain. Do not use alkali-based or acid based detergent such as rust cleaners as it may result in damage and/or failure of the chain.
- Use the reinforced connecting pin only for connecting the narrow type of chain.
- There are two different types of reinforced connecting pins available. Be sure to check the table below before selecting which pin to use. If connecting pins other than reinforced connecting pins are used, or if a reinforced connecting pin or tool which is not suitable for the type of chain is used, sufficient connection force may not be obtained, which could cause the chain to break or fall off.

Chain	Reinforced connecting pin	Chain tool
9-speed super narrow chain such as CN-7701 / CN-HG93	 Silver 6.5 mm	TL-CN32/TL-CN23
8- / 7- / 6-speed narrow chain such as CN-HG50 / CN-IG51	 Black 7.1 mm	TL-CN32/TL-CN23

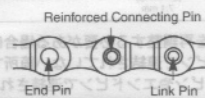
- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin or an end pin.

The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin or an end pin.

- Check that the tension of the chain is correct and that the chain is not damaged. If the tension is too weak or the chain is damaged, the chain should be replaced. If this is not done, the chain may break and cause serious injury.
- Obtain and read the service instructions carefully prior to installing the parts. Loose, worn, or damaged parts may cause injury to the rider.
- We strongly recommend only using genuine Shimano replacement parts.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

**Note**

- If gear shifting operations do not feel smooth, wash the derailleur and lubricate all moving parts.
- If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.
- You should periodically clean the derailleur and lubricate all moving parts (mechanism and pulleys).
- If gear shifting adjustment cannot be carried out, check the degree of parallelism at the rear end of the bicycle. Also check if the cable is lubricated and if the outer casing is too long or too short.
- If you hear abnormal noise as a result of looseness in a pulley, you should replace the pulley.
- If the wheel becomes stiff and difficult to turn, you should lubricate it with grease.
- Do not apply any oil to the inside of the hub, otherwise the grease will come out.
- You should periodically wash the sprockets in a neutral detergent and then lubricate them again. In addition, cleaning the chain with neutral detergent and lubricating it can be an effective way of extending the useful life of the sprockets and the chain.
- If the chain keeps coming off the sprockets during use, replace the sprockets and the chain.
- Always be sure to use the sprocket set bearing the same group marks. Never use in combination with a sprocket bearing a different group mark.
- Use a frame with internal cable routing is strongly discouraged as it has tendencies to impair the SIS shifting function due to its high cable resistance.
- Use an outer casing which still has some length to spare even when the handlebars are turned all the way to both sides. Furthermore, check that the shifting lever does not touch the bicycle frame when the handlebars are turned all the way.
- Grease the inner cable and the inside of the outer casing before use to ensure that they slide properly.
- Operation of the levers related to gear shifting should be made only when the front chainwheel is turning.
- Parts are not guaranteed against natural wear or deterioration resulting from normal use.
- For maximum performance we highly recommend Shimano lubricants and maintenance products.
- For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional bicycle dealer.



## Technical Service Instructions

SI-6KT0B

**Rear Drive System**

In order to realize the best performance, we recommend that the following combination be used.

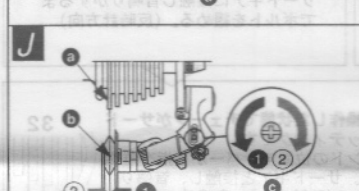
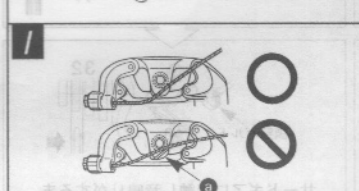
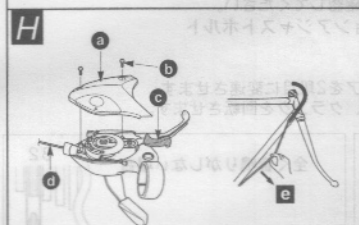
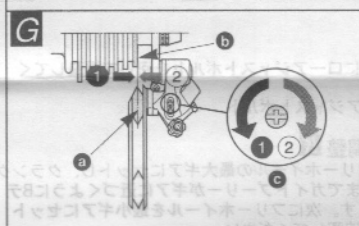
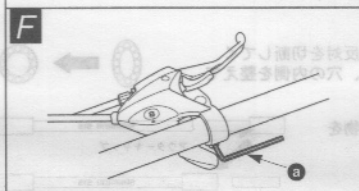
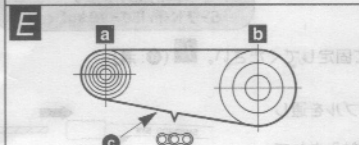
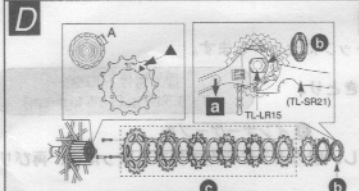
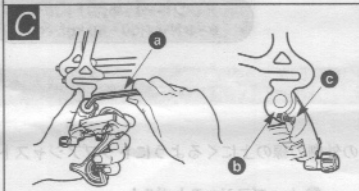
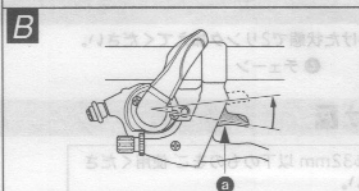
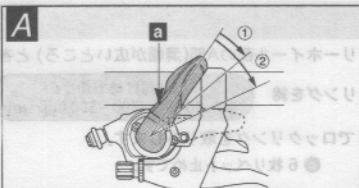
Series	Altus	
Rapidfire Plus	ST-EF50-8R	ST-EF50-7R
Outer casing	SIS	
Rear derailleur	RD-CT95	
Type	Smart Cage	
Freehub	FH-RM30-8	FH-RM30-7
Gears	8	7
Cassette sprocket	CS-HG50-8I CS-HG40-8I	CS-HG50-I CS-HG30-I
Chain	CN-HG50 / CN-HG40	
Bottom bracket guide	SM-SP18 / SM-BT18	

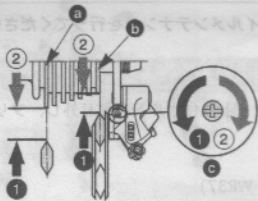
**Specifications****Rear Derailleur**

Model number	RD-CT95
Type	Smart Cage
Total capacity	43T
Largest sprocket	34T
Smallest sprocket	11T
Front chainwheel tooth difference	20T
Applicable front chainwheel (chaining tooth configuration)	FC-TY40 (42-34-24T) FC-TX71 (48-38-28T)

**Cassette sprocket tooth combination**

Model number	Sprockets	Group name	Tooth combination
CS-HG50-8I	8	an	11, 13, 15, 17, 20, 23, 26, 30T
CS-HG40-8I	8	ao	11, 13, 15, 17, 20, 23, 26, 34T
CS-HG50-I	7	at	11, 13, 15, 18, 22, 26, 34T
CS-HG30-I	7	ac	11, 13, 15, 18, 21, 24, 28T



**K**

## Gear shifting operation

Both lever (A) and lever (B) always return to the initial position when they are released after shifting. When operating one of the levers, always be sure to turn the crank arm at the same time.

**To shift from a small sprocket to a larger sprocket (Lever A) **A****

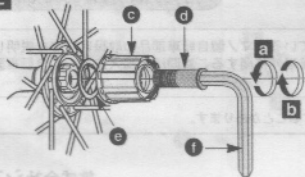
To shift one step only, press lever (A) to the ① position. To shift two steps at one time, press to the ② position.

**a** Lever (A) initial position.

**To shift from a large sprocket to a smaller sprocket (Lever B) **B****

Press lever (B) once to shift one step from a larger to a smaller sprocket.

**a** Lever (B)

**L**

## Installation of the rear derailleur **C**

When installing, be careful that deformation is not caused by the B-tension adjustment screw coming into contact with the dropout tab.

**a** 5 mm Allen key

**b** Dropout tab

**c** B-tension adjustment screw

**Bracket spindle tightening torque:**  
8 - 10 N·m {70 - 86 in. lbs.}

## Installation of the sprockets **D**

For each sprocket, the surface that has the group mark should face outward and be positioned so that the triangle ( $\blacktriangle$ ) mark on each sprocket and the A part (where the groove width is wider than the others) of the freewheel body are aligned.

For installation of the HG sprockets, use the special tool (TL-LR15) to tighten the lock ring.

To replace the HG sprockets, use the special tool (TL-LR15) and TL-SR21 to remove the lock ring.

- a** Disassembly      **b** Lock ring      **c** The 6 sprockets are secured by means of rivets.

## Chain length **E**

Add 2 links (with the chain on both the largest sprocket and the largest chainring)

- a** Largest sprocket      **b** Largest chainring      **c** Chain

## Mounting the shifting lever **F**

Use a handlebar grip with a maximum outer diameter of 32 mm

- a** 5 mm Allen key

Allen key tightening torque:  
6 - 8 N·m {53 - 69 in. lbs.}

## SIS Adjustment

### 1. Top adjustment **G**

Turn the top adjustment screw to adjust so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear.

- a** Guide pulley      **b** Outer line of smallest sprocket      **c** Top adjustment screw

### 2. Connecting and securing the inner cable **H**

Operate lever (B) at least 7 times to set the lever to the highest position.

Remove the screw, and then remove the cover.

Pull out the inner cable as shown in Figure, and then install the new inner cable.

- a** Cover      **b** Screw      **c** Lever (B)      **d** Inner cable

Connect the cable to the rear derailleur and, after taking up the initial slack in the cable, re-secure to the rear derailleur as shown in the illustration.

- e** Pull

Tightening torque:  
0.3 - 0.5 N·m {3 - 4 in. lbs.}

Tightening torque:  
5 - 7 N·m {44 - 60 in. lbs.}

**NOTE:** Be sure that the cable is securely in the groove. **I** (**a**: groove)

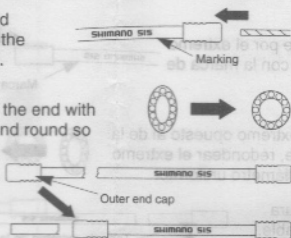
### Inserting the inner cable

Insert the inner cable into the outer casing from the end with the marking on it. Apply grease from the end with the marking in order to maintain cable operating efficiency.

### Cutting the outer casing

When cutting the outer casing, cut the opposite end to the end with the marking. After cutting the outer casing, make the end round so that the inside of the hole has a uniform diameter.

Attach the same outer end cap to the cut end of the outer casing.



### 3. Low adjustment **J**

Turn the low adjustment screw so that the guide pulley moves to a position directly in line with the largest sprocket.

- a** Largest sprocket      **b** Guide pulley      **c** Low adjustment screw

### 4. How to use the B-tension adjustment screw **K**

Mount the chain on the smallest chainring and the largest sprocket, and turn the crank arm backward. Then turn the B-tension adjustment screw to adjust the guide pulley as close to the sprocket as possible but not so close that it touches. Next, set the chain to the smallest sprocket and repeat the above to make sure that the pulley does not touch the sprocket.

- a** Largest sprocket      **b** Smallest sprocket      **c** B-tension adjustment screw

### 5. SIS Adjustment

Operate the shifting lever several times to move the chain to the 2nd sprocket. Then, while pressing the lever just enough to take up the play in the lever, turn the crank arm

When shifting to 3rd

Outer casing adjustment barrel

Tighten the outer cable adjusting barrel until the chain returns to the 2nd sprocket. (clockwise)

When no sound at all is heard

Outer casing adjustment barrel

Loosen the outer casing adjustment barrel until the chain touches the 3rd sprocket and makes noise. (counter clockwise)

**Best setting**

The best setting is when the shifting lever is operated just enough to take up the play and the chain touches the 3rd sprocket and makes noise.

\*Return the lever to its original position (the position where the lever is at the 2nd sprocket setting and it has been released) and then turn the crank arm clockwise. If the chain is touching the 3rd sprocket and making noise, turn the outer casing adjustment barrel clockwise slightly to tighten it until the noise stops and the chain runs smoothly.

Operate lever to change gears, and check that no noise occurs in any of the gear positions.

For the best SIS performance, periodically lubricate all power-transmission parts.



## Replacement of the freewheel body **L**

After removing the hub axle, remove the freewheel body fixing bolt (inside the freewheel body), and then replace the freewheel body.

- |                         |                                     |
|-------------------------|-------------------------------------|
| <b>a</b> Disassembly    | <b>d</b> Freewheel body fixing bolt |
| <b>b</b> Assembly       | <b>e</b> Freewheel body washer      |
| <b>c</b> Freewheel body | <b>f</b> 10 mm Allen key (TL-WR37)  |

### NOTE:

**Do not attempt to disassemble the freewheel body, because it may result in a malfunction.**

**Tightening torque:**  
35 - 50 N·m {305 - 434 in. lbs.}

This service instruction explains how to use and maintain the Shimano bicycle parts which have been used on your new bicycle. For any questions regarding your bicycle or other matters which are not related to Shimano parts, please contact the place of purchase or the bicycle manufacturer.

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Please note: specifications are subject to change for improvement without notice. (English)

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XBC SZK Printed in Malaysia

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